

**REMARKS**

Reconsideration of all grounds of rejection in the Office Action based upon the above amendments, and allowance of all of the pending claims are respectfully requested in light of the following remarks.

Claims 1-20 are rejected. Claim 1, 3-6, 8, 15, 18 and 19 have been amended. Dependent claims 10-12, 14 and 20 have been canceled and dependent claims 21-25 have been added. Claims 1-25 are now pending of which 1, 4, 15 and 18 are independent claims.

Dependent claim 3 was amended to indicate the time for performing a switching function in the present invention (Page 6, line 1 to 4). No new matter was added. Dependent claims 5-6 and 19 were amended to disclose two embodiments of the present invention as illustrated in FIG. 5A and 5B and as discussed in the specification on page 6, lines 1-20 and page 8, line 7 to 12, respectively. No new matter was added.

Dependent claim 8 was amended to overcome an informality pointed out by the Examiner. In response cited informality, applicants removed the verbs infinitive from the cited passage in the dependent claim.

Dependent claim 16 was amended to more accurately disclose that the OAM is an Ethernet OAM frame as illustrated in FIG. 5C and discussed on page 8, lines 13 to 20. No new matter was added.

Finally, dependent claims 21-25 were added to further disclose various embodiments of the present invention. New dependent claim 21 is illustrated in FIG. 5A and discussed on page 6, line 1 -20. New dependent claims 22-3 are similarly illustrated in FIG. 5A and discussed on page 8, line 2 to 7. New dependent claim 24 and 25 are

illustrated in FIG. 5C and discussed on page 8, line 13 to 20. No new matter was added in presenting new dependent claims 21-25.

Claim 1, 2 and 15 are rejected under 35 U.S.C. § 102(e) as being anticipated by Kawate et al. (2002/0030865). In addition, claim 3, 4, 5, 7-9, 13, 16-19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kawate et al. (US 2002/0030865) in view of Xu et al. (US 2002/0071149). In response, applicant respectfully traverse the rejections based upon the amendments to the base claims which now present a feature not shown in the prior art.

Claims 1, as amended now recite an apparatus for a GE-PON (Gigabit Ethernet Passive Optical Network) system which includes an OLT (Optical Line Terminal), a splitter connected to the OLT via a working path line composed of only one optical fiber, and a plurality of ONUs (Optical Network Units) connected to the splitter via individual optical fibers, **wherein a switching block is located in the OLT for performing a switching operation by means of using a notification field for indicating asynchronous information contained in an Ethernet OAM frame.**

Claim 4 has been amended and now recites a GE-PON (Gigabit Ethernet Passive Optical Network) apparatus **wherein a switching block is configured for using a notification field for indicating asynchronous information contained in an Ethernet OAM frame.**

Claim 15 has been amended and now recites an Ethernet OAM (Operation, Administration and Maintenance) frame for a GE-PON (Gigabit Ethernet Passive Optical Network) system having two path lines located between a splitter and an OLT (Optical Line Terminal) in which only one path line is in a connection state to serve as a working

path line, and the other one path line is in a no-connection state to serve as a protection path line, said Ethernet OAM frame, wherein a switching block located in said OLT for performing a switching operation, said switching operation by means of a operation field contained in the Ethernet OAM frame including, *inter alia*, a notification field for indicating asynchronous information.

Claim 18 has amended to recites a method for controlling a GE-PON (Gigabit Ethernet Passive Optical Network) system including, *inter alia*, providing a switching block located in the OLT for performing a switching operation upon receiving the switching request from an ONU to switch a current working path line to a protection path line and to switch a current protection path line to the working path line, whereas said automatic switching operation is by means of using a notification field for indicating asynchronous information contained in an Ethernet OAM frame.

In contrast to all four base claims, Kawate, as read by applicants discloses a B-PON (Broadband –Passive Optical Network) which modifies the ITU-T G. 783 switching function using K1 and K2 to include a PST (PON Section Trace) message of a PLOAM (Physical Layer Operations and Maintenance) cell (see page 4, ¶ [0084]). Kawate does not disclose the Ethernet (IEEE 802.3ah (EFM)) OAM frame as disclosed in the amended claims for providing a switching block located in the OLT for performing a switching operation by means of using a notification field for indicating asynchronous information contained in an Ethernet OAM frame as recited in base claim 1. Similarly, Kawate does not disclose a GE-PON apparatus wherein a switching block is configured for using a notification field for indicating asynchronous information contained in an Ethernet OAM frame as recite in amended base claim 4.

Nor does Kawate disclose an Ethernet OAM frame for a GE-PON wherein a switching block located in said OLT for performing a switching operation, said switching operation by means of a operation field contained in the Ethernet OAM frame including, *inter alia*, a notification field for indicating asynchronous information as recited in amended base claim 15. Also, Kawate does not disclose a method for controlling a GE-PON (Gigabit Ethernet Passive Optical Network) system including, *inter alia*, providing a switching block located in the OLT for performing a switching operation upon receiving the switching request from an ONU to switch a current working path line to a protection path line and to switch a current protection path line to the working path line, whereas said automatic switching operation is by means of using a notification field for indicating asynchronous information contained in an Ethernet OAM frame as recited in base claim 18.

Kawate merely discloses the prior art technique of providing an ATM switching function in a B-PON as illustrated in Kawate's FIG.s 5 and 6 as discussed on page 2, line 11 to 18 in the present invention's specification. One embodiment of the present invention, on the other hand, relates to solving a well known problem in GE-PON; the lack of recovery from fault conditions because the IEEE standard lacks a frame format for providing control of switching function. As set forth in the specification, one embodiment of the present invention provides an apparatus and method of providing a switching scheme in the emerging IEEE 802.3ah (EFM) (page 2, line 19-22). Kawate's does not provide this feature but merely modified the conventional PLOAM which even if modified will not function in the present invention (its "incompatible") and therefore is not a Ethernet OAM disclosed in the present invention (see page 2, line 19-22

specification and see also Graves page 2, ¶ [0014] and ¶ [0019] ). Therefore, Kawate fails to anticipate the present invention which discloses an **Ethernet OAM frame**. Moreover, Kawate does not suggest or teach the present invention as it PLOAM is incompatible with the present inventions **Ethernet OAM frame**.

Similarly Xu fails suggest or teach a IEEE 802.3ah OAM which provides **a switching operation by means of using a notification field for indicating asynchronous information contained in an Ethernet OAM frame** as recited in base claim 1 or suggested or taught as disclosed in the remaining three base claims as described above. Xu, like Kawate relates to a B-PON and as applicants understand that invention disclose a method of speeding up protection by way of a ‘uni-ranging process’ switching by ranging only one ONU associated with a failed fiber, rather than all ONUs associated with a failed fiber. Therefore, XU, like Kawate fails to anticipate the present invention which discloses an **Ethernet OAM frame**. Moreover, Xu, like Kawate does not suggest or teach the present invention as it discloses the use of a PLOAM, Kawate which is incompatible with the present inventions **Ethernet OAM frame**.

Applicants respectfully submit that based upon the amendments to the base claims and the above comments that the rejections of the base claims under 102(e) and 103(a) should be withdrawn.

The other claims in this application are each dependent from the independent claim discussed above and are therefore believed patentable for the same reasons. Applicants respectfully remind the Examiner of his burden when making an indication of inherency such as the that made in support of the rejection dependent claim 16 (“inherent that they are represented by a bit alarm the system of the current system status”).

Applicants request that documentary evidence be presented in support of this proposition or that the rejection of the dependent claim be withdrawn. In addition, since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of the patentability of each on its own merits is respectfully requested.


For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited reference. A notice of Allowance is respectfully requested.

Should the Examiner deem that there are any issues, which may be best, resolved by telephone communication, please contact Applicant's undersigned Attorney at the number listed below.

Respectfully submitted,

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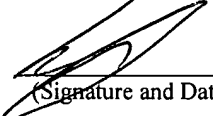
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